

Rooto Corporation
3505 W. Grand River Ave.
Howell, MI 48843
(517) 546-8330

MATERIAL SAFETY DATA SHEET

REVISED 11/2/00

| I. PRODUCT IDENTIFICATION | | 1069 | 1071 | 1079 | 1084 |
|--|---|--|--|--|-------------------|
| PRODUCT NAME: | Professional Drain Opener | | | | |
| CHEMICAL NAME: | Sulfuric Acid Mixture: Gr. vles; Commercial (93.19) | | | | CAS NO. 7681-93-9 |
| DESCRIPTION: | A clear to amber, heavy, oily liquid which may have a sharp penetrating SO ₂ odor. | | | | RTECS NO. N/A |
| Other Designation | Manufacturer | | | Emergency Procedure | |
| Drain Cleaner | Rooto Corporation 3505 W. Grand River Ave. Howell, MI 48843 | | | Contact a physician, or the Poison Control Center immediately. | |
| II. PHYSICAL PROPERTIES | | III. FIRE AND EXPLOSION DATA | | | |
| Physical State: Liquid | Odor Threshold: Nodata | Flash Point (method): | Not applicable, product is non-flammable | | |
| Boiling Point: 93.19% | 27.6° C (520° F) | Autoignition Temperature: | Not combustible | | |
| Melting/Freezing Point: 93.19% | -29.6° C (-21.1° F) | Flammability Limits in air (%): | UEL: Not applicable LEL: Not applicable | | |
| Vapor Pressure at 40° C (102° F): | 93.18%: 0.0018 mmHg | Fire Extinguishing Media: | Use appropriate media to extinguish source of fire. Use water carefully (see below). | | |
| Specific Gravity at 15° C (60° F): | 93.19%: 1.0354 | Fire Fighting Procedures: | Fire involving small amount of combustible may be smothered with suitable dry chemical. Use water on combustibles burning in vicinity of this material but use care; water applied directly will cause evolution of heat and cause spattering. Full protective equipment including a self-contained breathing apparatus should be worn. | | |
| Vapor Density: | No data, not volatile at normal temperatures | Other Fire or Explosion Hazards: | Not flammable but highly reactive; capable of igniting finely divided combustible materials on contact. Reacts violently with water and organic materials with evolution of heat. Extremely hazardous in contact with many materials, particularly carbides, chlorides, fulminates, nitrates, picrates, powdered metals, releasing hydrogen. | | |
| Bulk Density: | Not applicable (see specific gravity). | Hydrogen gas can accumulate to explosive concentrations in cold config spaces. | | | |
| Evaporation Rate: | Not applicable | Sensitivity to Chemical Impact: | Nodata | | |
| Solubility: | Miscible in all proportions in water. Also soluble in alcohol. | Boil of Burning: | Nodata | | |
| % Volatile by Volume: | 0% at room temperature. | Explosive Power: | Nodata | | |
| pH: | 0.3 (1N solution at 25° C/78° F) | Sensitivity to Static Discharge: | Nodata | | |
| IV. REACTIVITY DATA | | V. TOXICOLOGICAL AND HEALTH DATA | | | |
| Stability: Under Normal Conditions: | Stable | Recommended Exposure Limit: | ACGIH TLV-TWA (1987-88): 1 mg/m³ | | |
| Under Fire Conditions: | Decomposes to SO ₂ . | OSHA PEL (1989): | 1 mg/m³ | | |
| Hazardous Polymerization: | Will not occur | Toxicological Data: | LD ₅₀ (oral, rat) = 2140 mg/kg | | |
| Conditions to Avoid: | Temperatures which may have a negative effect on the materials of construction used in equipment. | LC ₅₀ (inhalation, rat) = 510 mg/m³ for 2 hrs. | | | |
| Materials to Avoid: | Contact with organic materials (such as chlorides, carbides, fulminates and picrates). May cause fire and explosions. Contact with metals may produce flammable hydrogen gas. | Carcinogenicity Data: | This product is not classified by NTP (National Toxicology Program), not regulated as carcinogenic by OSHA (Occupational Safety and health Administration); and has not been evaluated by IARC (International Agency for Research on Cancer) or ACGIH (American Conference of Governmental Industrial Hygienists). | | |
| Hazardous Decomposition or Combustion Products: | Toxic gases and vapors (e.g. sulfur dioxide, sulfuric acid vapors and sulfur trioxide) may be released when sulfuric acid decomposes. | Reproductive Effects: | No information is available and no adverse reproductive effects are anticipated. | | |
| VI. PRODUCT IDENTIFICATION | | Mutagenicity Data: | No information is available and no adverse mutagenic effects are anticipated. | | |
| HAZARD SUMMARY (29 CFR 1910.1200) | | Teratogenicity Data: | No information is available and no adverse teratogenic effects are anticipated. | | |
| Physical Hazards: Oxidizer, Water-reactive | | Synergistic Materials: | None known. | | |
| Health Hazards: Corrosive | | Effects of exposure when: | 1) Inhaled: Mists and vapors may cause irritation of the eyes, nose and respiratory tract. May cause increased pulmonary resistance, transient cough and bronchoconstriction. Severe overexposure may result in lung collapse and pulmonary edema which can be fatal. Prolonged or repeated exposure may result in impaired lung function and possible discoloration and erosion of teeth. 2) In contact with the skin: Concentrated solution may cause pain and severe burns to the skin and brownish or yellow stains. Prolonged and repeated exposure to dilute solutions may cause irritation, redness, pain and | | |
| Product Synonyms: Oil of Vitriol, Sulphuric Acid | | | | | |
| Chemical Family: Inorganic Acid | Molecular Formula: H ₂ SO ₄ | | | | |
| WHMIS Classification: Class E - Corrosive, Class d1A | | | | | |
| Very Toxic | | | | | |
| Product Use: Used in manufacture of drain care products. | | | | | |
| SHIPPING DESCRIPTION: | | | | | |
| U.S. Under D.O.T.) | CANADA (Under T.C.) | | | | |
| Shipping Name: RC Sulfuric Acid | Sulfuric Acid | | | | |
| Hazard Class: Corrosive Material | Shipping Class/Division: | | | | |
| Product ID. No.: UN1830 | Class 8 (9.2) | | | | |
| | Product ID. No.(PIN): UN183C | | | | |
| | Packing Group: II | | | | |
| HAZARDOUS INGREDIENTS OF MATERIALS: | | | | | |
| Hazardous Ingredients | % | ACGIH | OSHA | | |
| | | TLV | PEL | | |
| Sulfuric Acid | 50-100 | 1 mg/m³ | 1 mg/m³ | | |

V. TOXICOLOGICAL AND HEALTH DATA (CONT.)

drying and cracking of the skin. 3) In contact with the eyes: immediate pain, severe burns and permanent corneal damage which may result in blindness. 4) Ingested: Severe burning and pain in the mouth, throat and abdomen. Vomiting, diarrhea and perforation of the esophagus and stomach; bleeding may occur. 5) Other Health Effects: Corrosive effects on the skin and eyes may be delayed and damage may occur without the immediate onset of pain. Strict adherence to first aid measures following any exposure is essential.

Fatal/Procedure when:

Inhaled: Move victim to fresh air. Give artificial respiration ONLY if breathing has stopped. Give Cardiopulmonary Resuscitation (CPR) if there is no breathing AND pulse. Obtain medical attention IMMEDIATELY.

In contact with the skin: Flush skin with running water for approximately 20 minutes. Skin flushing while continuing continuous rinsing. If irritation persists, repeat flushing. Obtain medical attention IMMEDIATELY. Do not re-wash with water after rinsing unless flushing continues unless flushing can be continued during transport.

In contact with the eyes: Immediately flush eyes with running water for a minimum of 20 minutes. If eye irritation continues after rinsing, if irritation persists, repeat flushing. Obtain medical attention IMMEDIATELY. Do not flush eyes with water after rinsing unless flushing continues unless flushing can be continued during transport.

Ingested: If victim is able and conscious, flush out mouth and give 1/2 to 1 glass of water to dilute material. If spasm/irritant vomiting occurs, have victim lie forward with head down to avoid aspiration and vomit, rinse mouth and administer more water. IMMEDIATELY contact local poison control center. Vomiting may need to be induced but should be directed by a physician or a poison control center.

IMMEDIATELY transport victim to an emergency facility.
Note to Physician: Medical conditions that may be aggravated by exposure include asthma, bronchitis, emphysema and other lung diseases and chronic nose, sinus or throat conditions. In the event of skin or eye contact, rapid and thorough flushing is essential.

VII. ENVIRONMENTAL PROTECTION DATA

Steps to be taken in the event of a spill or leak: 1) Isolate spill/leak from sources. 2) Absorb liquid. 3) Stop further leak if able to do so. 4) Wipe up remaining liquid (soil, etc.). Control leachate/runoff for collection or disposal.

Environmental Effects: Irritation potential is very low concentrations. May be dangerous to marine water life; fish toxicity critical concentration = 30 mg/L; 7.51 mg/L/10 hr. + Luminene? plus 0-100% mortality.

Deactivating Chemicals: 1. kro, kropon, sodium carboronate (soot ash), sodium bicarbonate, calcium sodium thiosulfate, dilute sulfuric acid.

Waste Disposal Methods: Dispose of waste material at an approved waste treatment/disposal facility, in accordance with applicable regulations. Do not dispose of waste with normal garbage.

VI. PREVENTATIVE MEASURES

Recommendations listed in this section include the type of equipment which will provide protection against over exposure to this product. Conditions of use, adequacy of engineering or other control measures, and actual exposures will dictate the need for specific protective devices at your workplace.

Engineering Controls: Localized and ventilation required.

Air-purifying protection: ANKOSI VMSI (Approved air-purifying respirator equipped with nitrile filters, dust, mist cartridges for concentrations up to 10 mg/m³). Air-supplied respirator if concentrations are higher or unknown.

Skin Protection: Impervious (i.e. neoprene, PVC) gloves, coveralls, boots and/or other acid resistant protective clothing.

Eye Protection: Safety glasses or light-fitting chemical goggles.

Other Personal Protective Equipment: Where there is a danger of spilling or splashing, acid resistant aprons or suits should be worn. Trouser legs should be worn outside (not tucked in) rubber boots. Safety showers and eyewash fountains should be installed in storage and handling areas.

Training Procedures and Equipment: Calibration or similar test materials are suitable for use for acid concentrations equal to or greater than 10%. However, the affected known concentrations of the materials of construction must be verified prior to use. Consult product supplier for specific recommendations when handling sulfuric acid containing less than 77%.

Storage Temperature: Store above freezing point (Section 2). Elevated temperatures will increase the risk of decomposition.

Storage Requirements: Store packaged sulfuric acid in dry, well-ventilated location away from combustibles, oxidizers, bases, or metallic powders. Storage tanks should be protected from water ingress, be well ventilated, and maintained structurally in a safe and reliable condition.

Other Precautions: Keep away from ignition sources. Sulfuric acid will attack some forms of plastics and coatings. Always add acid to water - not water to acid. If kept in upper floors of building, floors should be acid proof with dimensions of recovery tank.

VIII. ADDITIONAL INFORMATION AND SOURCES USED

1. MITSUI EX Technical Bulletin, "Sulfuric Acid"

2. Enviro-Tech Manual, "Stainless Steel Pipe Cleanout", Environmental Canada, February, 1984.

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